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EXAMINER

LEE, SIN J

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 15

Application Number: 09/739,750
Filing Date: December 20, 2000
Appellant(s): TAKANASHI ET AL.

Matthew Jacob
For Appellant

EXAMINER'S ANSWER

MAILED
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GROUP 1700

This is in response to the appeal brief filed July 21, 2003.

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(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is deficient because it does not state that the amount of the component (E) is 1.0 to 2.0 wt. percent *based on the weight of the solid components of the photosensitive resin composition* (present claim 1 states the amount of the component (E) in wt.% based on the weight of the solid components of the photosensitive resin composition).

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellant's statement in the brief that certain claims do not stand or fall together is not agreed with. Appellant argues that claim 3 is separately patentable

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under 112, 1st Paragraph. The Examiner is withdrawing that rejection as addressed in Paragraph 10 below, and therefore, claim 3 stands or falls with claims 1 and 5.

Appellant has presented reasons why claim 4 is separately patentable.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

4,361,640	PINE	11-1982
JP 2-84653	TANAKA ET AL	3-1990
5,703,140	KUNITA ET AL	12-1997
5,744,282	ICHIKAWA ET AL	4-1998

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pine. This rejection is set forth in prior Office Action, Paper No. 7.

Claims 1, 3, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (JP 2-84653, its English abstract, Chemical Abstract AN 1990:506458, and its full-English translation provided by PTO) in view of Kunita et al (5,703,140).

Tanaka teaches (see claim 1 of the English translation as well as the Chemical Abstract) a photosensitive composition containing 100 parts of a 40/60-80/20 mixture of a film forming polymer (present component (A)) and a vinyl compound (present component (B)), 0.5-10 parts of an aromatic sulfonamide of formula (I) (e.g., p-toluene

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sulfonamide as shown in the Chemical Abstract which is present component (E)), 0.2-10 parts of a polyether glycol, and 0.2-10 parts of an organic halogen-containing compound, and 0.5-10 parts of a sensitizer or its system creating free radicals under active light irradiation (present component (C)). 0.5-10 parts of aromatic sulfonamide (such as p-toluene sulfonamide) is converted to 0.49 wt.% to 7.14 wt.% based on the total weight of the composition (without any solvent involved). Since this range overlaps with present ranges of 1.0-2.0 wt.% (based on the solid components) and 1.0-1.5 wt.% (based on the solid components), the prior art's range would have made the present ranges of component (E) of claims 1 and 3 *prima facie* obvious. In the case "where the [claimed] ranges overlap or lie inside ranges disclosed by the prior art," a *prima facie* case of obviousness would exist which may be overcome by a showing of unexpected results, In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

Although Tanaka does not explicitly disclose the thermal polymerization inhibitor, it is well known in the art that addition of a slight amount of a thermal polymerization inhibitor into a photopolymerizable composition prevents unnecessary thermal polymerization of the polymerizable ethylenically unsaturated compound during the production or storage of the photosensitive composition. For example, see Kunita et al, col.86, lines 61-67, col.87, lines 1-8 which teaches the addition of the thermal polymerization inhibitor into a photopolymerizable composition in the amount of 0.01-5 wt.% based on the weight of the entire composition. Therefore, it would have been obvious to one of ordinary skill in the art to add a slight amount of the thermal polymerization inhibitor into Tanaka's photosensitive composition in order to prevent

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unnecessary thermal polymerization of the polymerizable ethylenically unsaturated compound during the production or storage of the photosensitive composition as taught by Kunita. Therefore, Tanaka in view of Kunita would render obvious present inventions of claims 1, 3, and 4.

The Examiner notes that the rejection on claims 1, 3, and 4 as discussed above now relies on the full-English translation of Tanaka (JP 2-84653) instead of the partial English translation which was relied on in the prior Office Action, Paper No. 7. However, the full-English translation fully supports the partial English translation, and the present rejection on claims 1, 3, and 4 relies on nothing more than what was already taught in the partial English translation of Tanaka, and therefore, the present rejection on claims 1, 3, and 4 does not result in new grounds of rejections.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (JP 2-84653, its English abstract, Chemical Abstract AN 1990:506458, and its full-English translation provided by PTO) in view of Kunita et al (5,703,140) as applied to claim 1 above, and further in view of Ichikawa et al (5,744,282).

Tanaka and Kunita with respect to present claim 1 is discussed above. Tanaka uses (in his Practical Examples) methyl methacrylate/methacrylic acid/2-ethylhexyl acrylate copolymer as his film-forming polymer. Ichikawa, which also teaches a photosensitive composition comprising a polymeric binder, a polymerizable ethylenically unsaturated compound, a photoinitiator, and p-toluene sulfonamide, teaches (see col.4, lines 8-17) the equivalence of Tanaka's copolymer and homopolymer of methacrylic acid. Since the homopolymer of methacrylic acid and methyl methacrylate/methacrylic

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acid/2-ethylhexyl acrylate copolymer were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to replace methyl methacrylate/methacrylic acid/2-ethylhexyl acrylate copolymer with the homopolymer of methacrylic acid (which is water soluble) in Tanaka's photosensitive composition with a reasonable expectation of achieving a photosensitive composition having improved adhesiveness and photosensitivity. Therefore, Tanaka in view of Kunita and Ichikawa would render obvious present invention of claim 5.

The Examiner notes that in view of appellant's argument, the rejection of claims 1 and 3-5 under 35 U.S.C. 112, 1st paragraph as containing subject matter which was not described in the specification, i.e., lack of written description, is hereby withdrawn.

(11) Response to Argument

Since Previous rejections on claims 1 and 3-5 (as addressed in Paragraph 8 of the Office Action, Paper No. 7) under 35 U.S.C. 112, 1st paragraph are withdrawn, appellant's argument concerning those rejections are of little moment. However, the Examiner would like to point out an erroneous remark of appellant shown on pg.5 of appellant's brief. On pg.5, last paragraph, appellant states "[i]n the Advisory action, paragraph 2, the Examiner refers to the amount of component (E) in Table 1 of the specification in terms of part by weight. The Examiner's remark is erroneous.

Correction was made to the expression "X parts by weight" in paragraph [0056] to read "X wt.% based on the weight of the photosensitive resin composition in the Amendment filed March 7, 2002." Appellant amended the specification to use the original language

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"X parts by weight" in the amendment of November 19, 2002 (in the REMARK section of the amendment, appellant states "[t]he above amendment is responsive to the rejection on new matter by undoing the amendment of March 7, 2002"). The amendment to change "X parts by weight" in paragraph [0056] to read "X wt.% based on the weight of the photosensitive resin composition" did not have support in the specification.

Therefore, appellant's remark shown in the last paragraph of pg.5 of appellant's brief is erroneous.

With respect to rejections of claims 1 and 3-5 under 35 U.S.C. 103(a) as being unpatentable over Pine'640, appellant argues that Table 1 on pg.23 of present specification establishes unexpectedly excellent results of the present invention for the range of 1.0 to 2.0 wt.% of component (E). Appellant points out that the Examiner previously accepted that unexpected results were shown in the range of 0.5 to 2.0 wt.% in paragraph 10 of the Office Action of December 7, 2001. Appellant furthermore points out that the Examiner then reconsidered her indication of unexpected results in the Final Rejection (Paper No.7) of June 19, 2002 at paragraph 9 and then rejected all of the present claims over Pine'640 in the Office Action. Appellant argues that it is clear to one of ordinary skill in the art that the data in the Declarations and in the present specification is based on the total weight of the composition as solids since this is the only reasonable interpretation given to this material by one of ordinary skill in the art. When this data is appropriately considered, appellant argues, it is apparent that rejection on Pine cannot stand.

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However, the Examiner already explained in Paragraph 2 of the Advisory Action (Paper No.10) that appellant's Examples 1-34 shown in Table I do not prove unexpectedly superior results of using the component (E) in the amount of *1.0-2.0 wt.% based on the weight of the photosensitive resin composition (as solids)*. That is, in the Table I, the best results are shown when the component (E) is used in the amount of 1.0-2.0 parts by weight *along with* 200 parts by weight of water, 200 parts by weight of polyvinyl alcohol, 70 parts by weight of polyethylene glycol diacrylate, 4 parts by weight of benzyldimethyl ketal, and 0.1 part by weight of methylhydroquinone (see [0056] of present specification). Therefore, the amount of 1.0-2.0 parts by weight for the component (E) shown in Table I is specific for the case of present examples 1-34 only, and *this amount of 1.0-2.0 parts by weight* (based on the total sum of 1.0-2.0 parts by weight of component (E), 200 parts by weight of water, 200 parts by weight of polyvinyl alcohol, 70 parts by weight of polyethylene glycol diacrylate, 4 parts by weight of benzyldimethyl ketal, and 0.1 part by weight of methylhydroquinone) *is not the same as the presently claimed 1.0-2.0 wt.% based on the weight of the photosensitive resin composition (as solids)*. Therefore, this is not commensurate in scope with the claimed invention. The Examiner notes that Examples 1-34 and Table I of the present specification are identical to Experiments 1-34 and Table I of the declaration executed September 25, 2000 and filed in parent application 09/262,077 on December 20, 2000. A copy of this declaration was submitted with Appellant's Brief. The Examiner notes that the comment "% by weight" has been inked in with a line pointing to the column titled "Addition Amount of component E" on this copy of the declaration. This comment

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was not present on the executed version of the declaration submitted to the Office on December 20, 2000. Furthermore, the comment contradicts the defined units for X found on pg.3 of the declaration "X parts by weight" sworn to be true by the declarant.

Appellant argues that since the data in Table I on pg.23 of present specification relates to both p- and o-isomers and shows unexpected results for both isomers in the claimed range, if there is any question as to the data of the p- versus the o-isomers of the component (E), the data in support of claim 4 should be considered separately. However, there was never a question as to the data of the p-versus the o-isomers of the component (E).

Appellant finally argues that Pine discloses a range of 0-18 wt.% also expresses a preference for 6-15 wt.% and that the latter range is outside the presently claimed range. The Examiner is fully aware that if criticality of the present range of 1.0-2.0 wt.% based on the weight of the photosensitive resin composition (as solids) were indeed shown, it would distinguish the present invention from Pine. However, as explained above, the evidence in the specification (and filed in the Declaration of September 25, 2000) is not commensurate in scope with the claimed invention, and Pine's broad range of 0-18 wt.% does encompass the present range. The Declaration of May 23, 2000 was trying to show criticality of 0.001-0.3 wt.% of the component (E) (see pg.2 of the declaration) and states on pg.7 that the "data of the Experiment support the criticality of the claimed range of 0.001-0.3 wt% of component (E)" which is clearly different from the present range of 1.0-2.0 wt.%. This declaration was already criticized by the Examiner during the prosecution of the parent application because the composition used in the

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experiment did not include the thermal polymerization inhibitor (component (D)) which is an essential component for the invention and the composition included additional components (such as trimethylolpropane, NH_4OH , cupferron, and phosphoric acid) which are not found in the prior art, Pine. Therefore, this declaration was insufficient to show unexpected results.

With respect to rejections of claims 1 and 3-5 under 35 U.S.C. 103(a) as being unpatentable over Tanaka (JP'653) in view of Kunita et al, appellant argues that disclosure of Tanaka is limited only to the fact that p-toluene sulfonamide is incorporated so as to obtain improved adhesion of the compound to the substrate. Appellant argues that the invention of Tanaka is silent about the effects of the present invention (i.e., remarkably improved depth of non-printing area in the photosensitive resin plate and improved resolution). Therefore, appellant argues, even those skilled in the art would not be motivated to make the present invention by use of the respective components in the defined ranges, so as to yield the effects of the present invention. However, the fact that Tanaka uses his p-toluene sulfonamide for a different reason than that of present invention is irrelevant in this case because what matters here is that the prior art clearly teaches the use of the aromatic sulfonamide compound such as p-toluene sulfonamide in an amount of 0.49 wt.% to 7.14 wt% which overlaps with the present range. The motivation provided by the prior art for using a component does not have to be the same as that of present invention.

Appellant argues that the criticality as to the amount of the component (E) has been explained and that therefore, the current 103 rejections over Tanaka should be

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withdrawn. However, as already addressed above, the criticality of the present range of 1.0-2.0 wt.% based on the weight of the photosensitive resin composition (as solids) has not been shown yet because the declarative evidence is not commensurate in scope with the claimed invention, and Tanaka's range of 0.49 wt.% to 7.14 wt.% does encompass with present range.

Based on the amount of the p-toluene sulfonamide calculated from Tanaka's Examples, appellant argues that Tanaka fails to disclose or suggest the criticality of the present range for the amount of (E) component. However, Tanaka clearly teaches that the amount of the p-toluene sulfonamide to be ranging anywhere from 0.49-7.14 wt.% (excluding solvent), and in the absence of appellant's showing of criticality of present range of 1.0-2.0 wt.% (based on solid components), the prior art's range which overlaps with present range would have made the present range prima facie obvious. The Examiner notes Appellant's calculations on pg.8 and 9 of the Appeal Brief showing that Tanaka exemplifies p-toluenesulfonamide values just below 1 wt.% and slightly above 2 wt.%. The Examiner notes that the calculations on pg.9 appear to relate to "Practical Example" 5-7 rather than "Comparative Example" 5-7 which contain no p-toluenesulfonamide. As noted by Appellant, Practical Example 5 has an amount of p-toluenesulfonamide of 0.899 wt.%. There is no evidence on the record comparing a sample comprising p-toluenesulfonamide of this amount with a sample comprising the closest inventive amount (1 wt.%).

Appellant again refers to the Declarations dated on September 25, 2000 and May 23, 2000 for the parent application (09/262,077) and argues that the showing of

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unexpected results of present invention was substantiated by those Declarations.

However, as noted previously, the Declarations filed in the parent application are not sufficient to demonstrate unexpected results.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Sin J Lee
Examiner
Art Unit 1752

S. J. Lee


sjl

October 27, 2003

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